

2012
B.Sc. (Hons.) Bio-Informatics
First Semester
BIN-1007: Introduction to Biochemistry

Time allowed: 3 Hours

Max. Marks: 60

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- a) Define phi and psi angles w.r.t. a peptide?
- b) Differentiate between fibrous and globular proteins?
- c) Define pi?
- d) What is the role of tRNA?
- e) Briefly explain Open reading frames?
- f) Explain the basic structure of Collagen? (6x2)

UNIT - I

II. a) Derive Henderson-Hasselbach equation?

- b) Explain the concept of Introns, exons, splice variants and triplet codon. (2x6)

III. Write short notes on the following:-

- a) Denaturation and Renaturation
- b) Ionization of water
- c) Closed circular and negative supercoiled DNA (3x4)

IV. a) Explain central dogma of molecular biology and its importance?

- b) Differentiate between Z-DNA and B-DNA (2x6)

UNIT - II

V. Write notes on the following types of Conjugated Glycans:

- a) Glycolipids
- b) Glycoproteins
- c) Proteoglycan (3x4)

P.T.O.

(2)

- VI. a) Write a note on functional and structural role of carbohydrates?
b) Discuss secondary structure of a proteins and its various types with corresponding examples? (2x6)
- VII. a) Derive Michaelis Menten equation and define K_m and V_{max} .
b) Differentiate between essential and non-essential amino acids. What are non-standard amino acids? (8,4)

x-x-x